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Wrong-Way Driving On California Freeways 1961-1972

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16. ABSTRACT

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Wrong-way signs and arrow pavement markings became National standards in 1967.

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WRONG-WAY DRIVING ON CALIFORNIA FREEWAYS 1961 - 1972

American Association of State Highway Officials

1972 Summer Meeting of the Operating Subcommittee on Traffic Engineering

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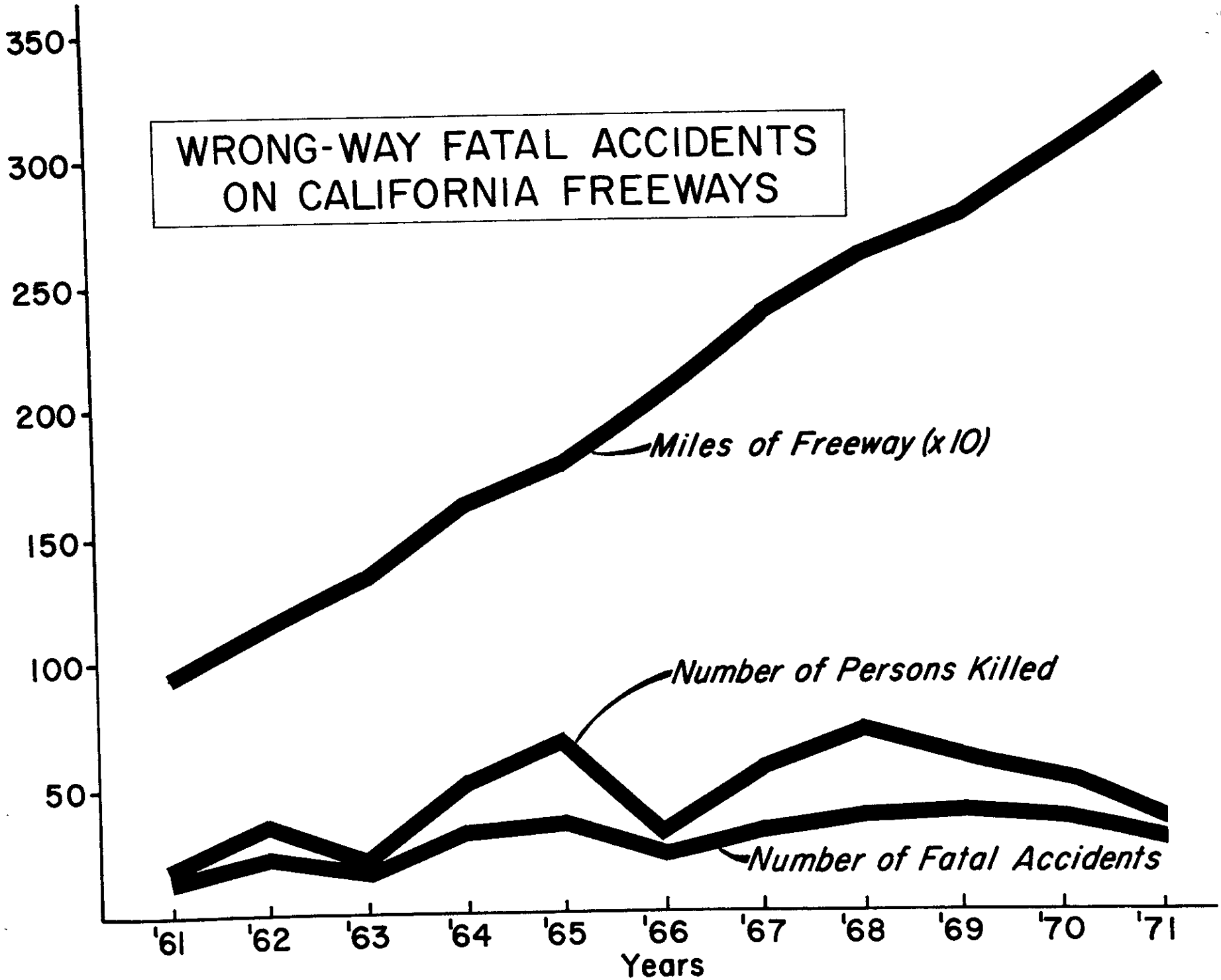

WRONG-WAY DRIVING ON CALIFORNIA FREEWAYS
1961 - 1972

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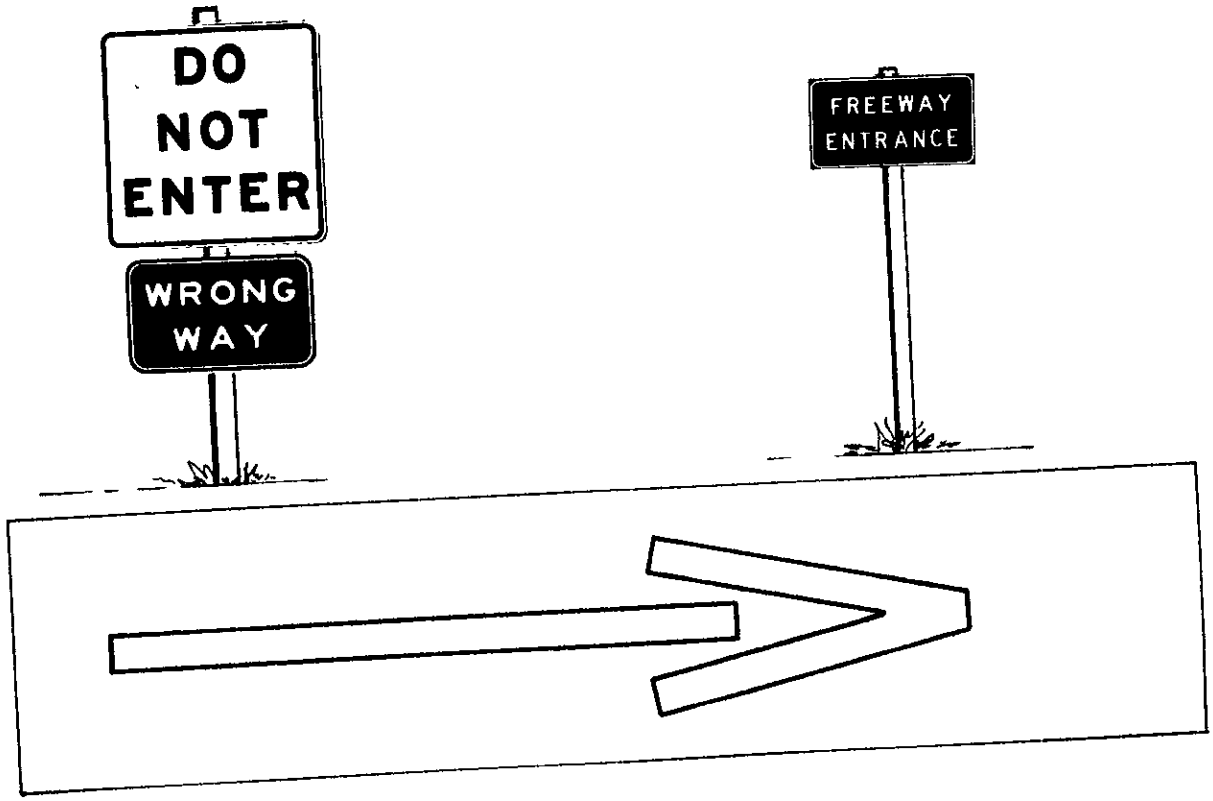

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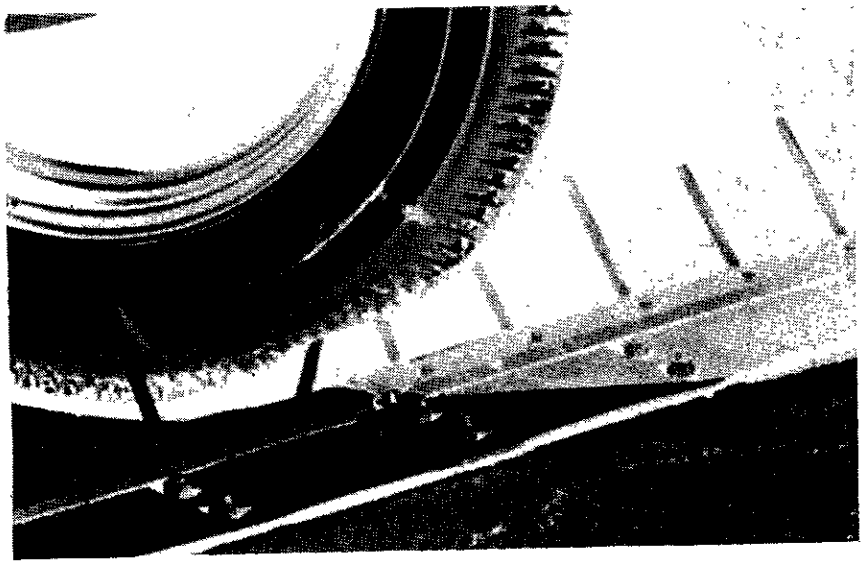
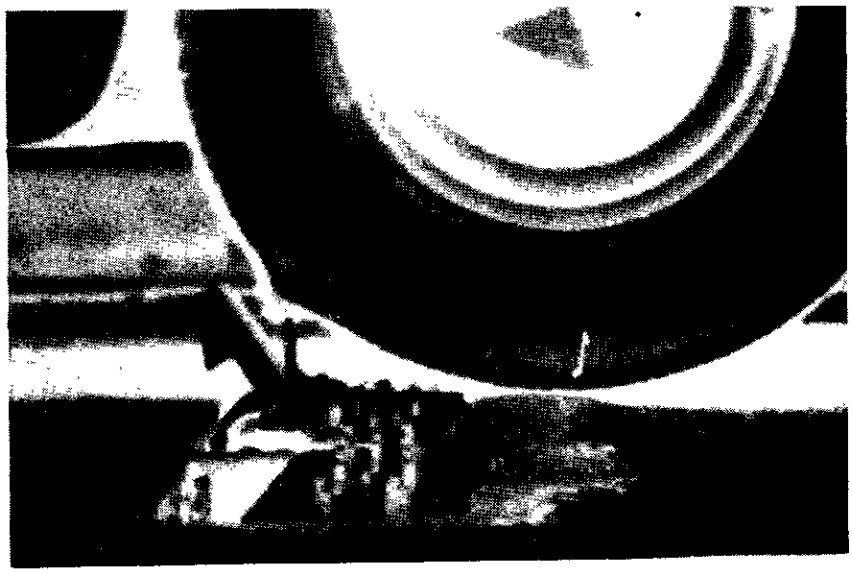


A total of seven wrong-way moves were made over these spikes and in only one case did the driver notice a change in air pressure within 10 seconds. In six of the runs, no effect was noticed after five minutes. It was also found that the spikes were so widely spaced that the narrow tires on some compact cars were able to pass between them.

To improve their effectiveness, a "fish-hook" barb was welded to the end of each spike. When this spike punctured a tire, it actually ripped a hole and was able to deflate the tire in from 10 to 30 seconds. Unfortunately, it was found that the strength of the tire casing under this fish-hook design was great enough to cause a permanent bend in the spike so that it now was pointed in the direction of right-way vehicles. This could probably be overcome by beefing up the design.



The biggest disadvantage noticed by the drivers who tested this barrier was that at speeds of 30 mph or more it was impossible to tell when driving toward the spikes whether they were with you or against you.

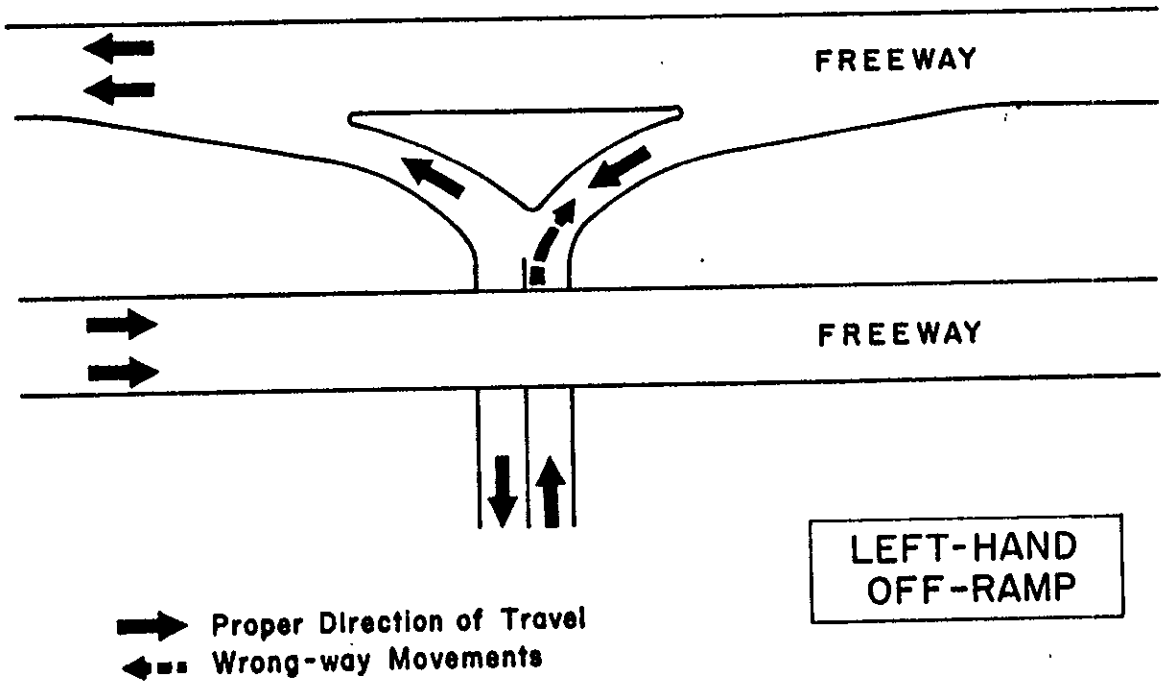
This could cause the right-way driver to be confused, hastily apply his brakes, and the results could be disasterous. We decided that the risks involved in using such a device, especially the probability of disabling a vehicle in a hazardous position, were too great.

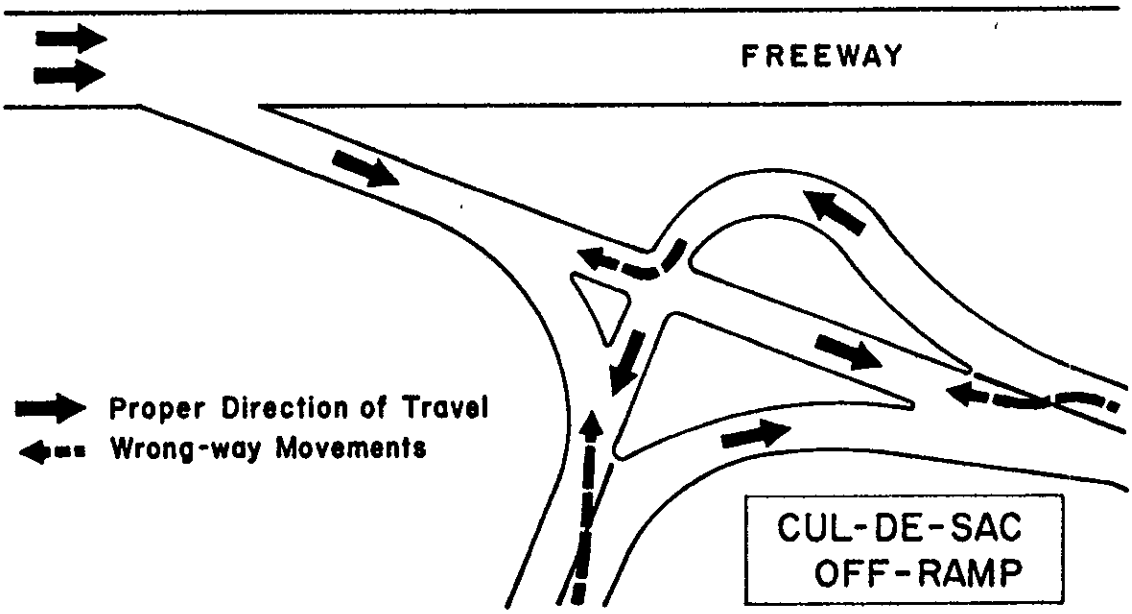
We developed a wrong-way warning device using light and sound. The device consisted of a 5' x 3' white on red reflective background sign. The message was "GO BACK - YOU ARE GOING WRONG WAY". Visual impact was increased by illuminating the sign only when actuated by a wrong-way vehicle. A standard 12" red signal head was placed below the sign 5' above ground level. The light was operated in the steady mode. Audio warning was accomplished by two electric horns, one continuous and the other pulsating. All these components were actuated by a vehicle moving opposite to the normal off-ramp flow by using an inductive loop directional detector.

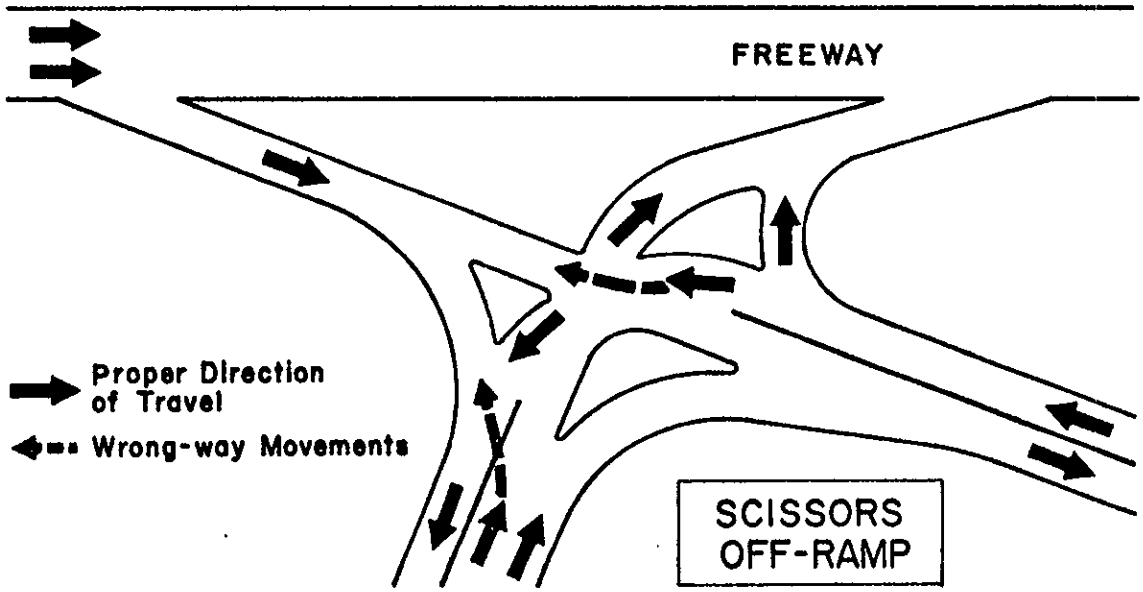
This device has shown a certain amount of success in discouraging wrong-way ramp movements, but at one test location 10% of the wrong-way drivers continued past the sign. The largest complaint against this installation has been from people living in the adjacent area who were bothered by the noise from the horns.

We also looked at various interchange designs to see if any of them could be contributing to wrong-way driving.

In our studies we have found some types of interchange design to be so confusing and conducive to wrong-way movements that we no longer design or build these types. These include:

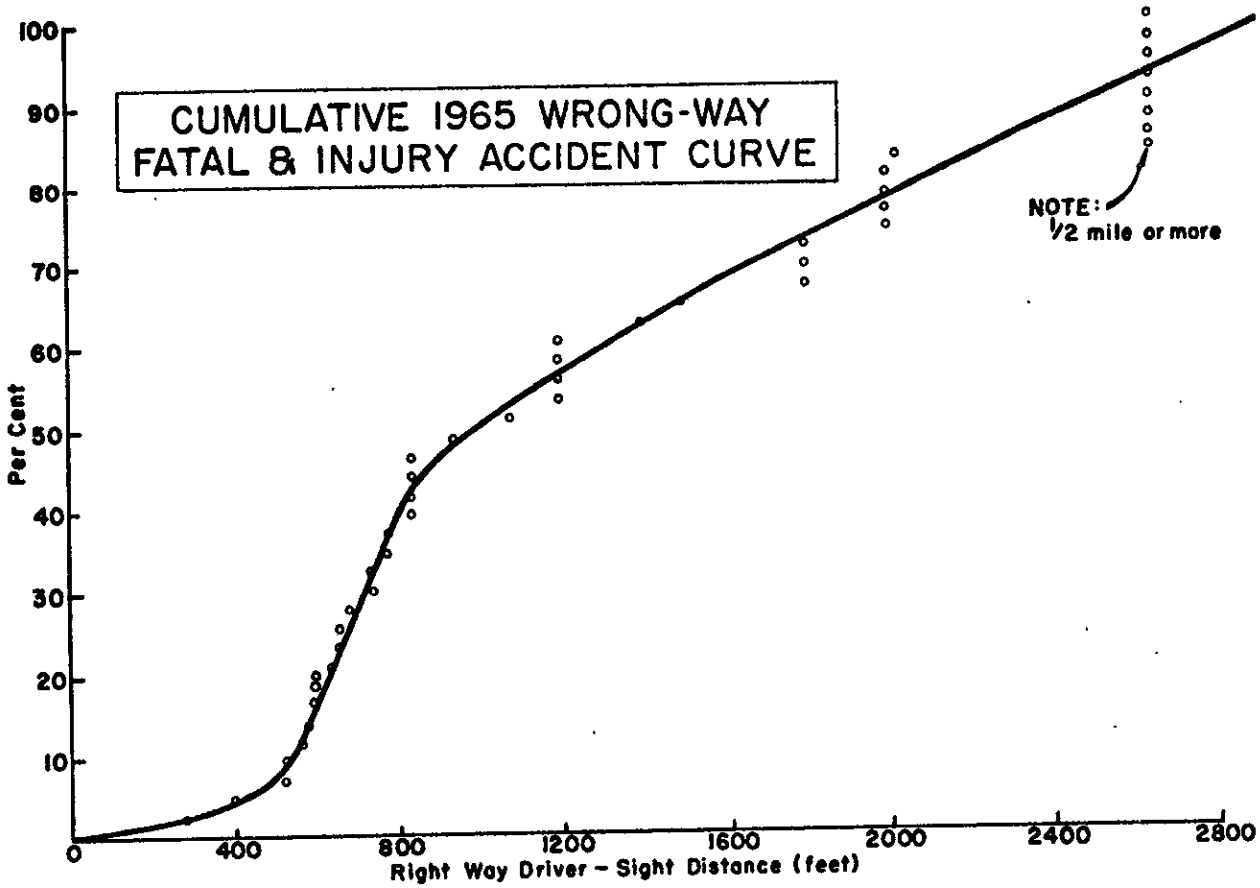


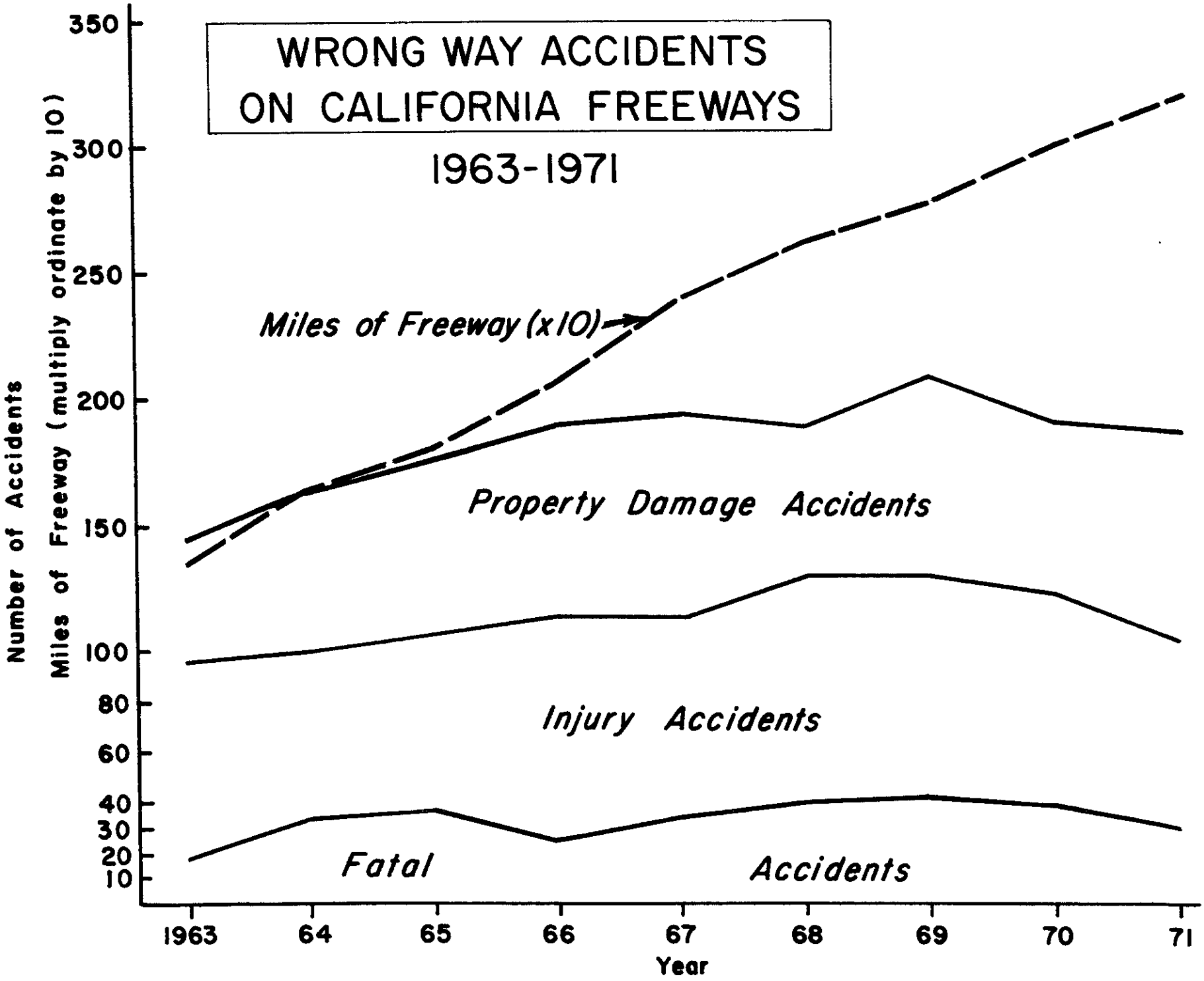




The use of isolated off-ramp and partial interchange designs is also discouraged. Approximately 70% of the known off-ramp entries that resulted in accidents in 1971 involved non-standard or unusual interchange types. About 1/2 of these were partial interchanges or isolated off-ramps.

A study of the geometric sight distance at wrong-way accident locations in 1965 showed that over one half of the fatal and injury wrong-way freeway accidents occurred at locations where the sight distance was less than 1,200 feet. As a result of this study, stopping sight-distance standards for freeways were increased in 1968.





MAGNITUDE OF THE PROBLEM

There are about 4,200 off-ramps in California. The volume of traffic using each of these ramps varies from 10 vehicles to 20,000 vehicles per day. This amounts to about 4 million right-way moves each day or 1-1/2 billion moves annually on California off-ramps. The safety and convenience of right-way drivers must, therefore, be a primary consideration in evaluating methods of stopping wrong-way driving.

One method we have of studying wrong-way driving is analysis of accident reports prepared by the California Highway Patrol. A copy of a typical wrong-way accident report is included in the Appendix. Since about 1964 the number of reported wrong-way accidents each year in California has remained fairly constant in spite of a continuing increase in opportunity for such accidents.

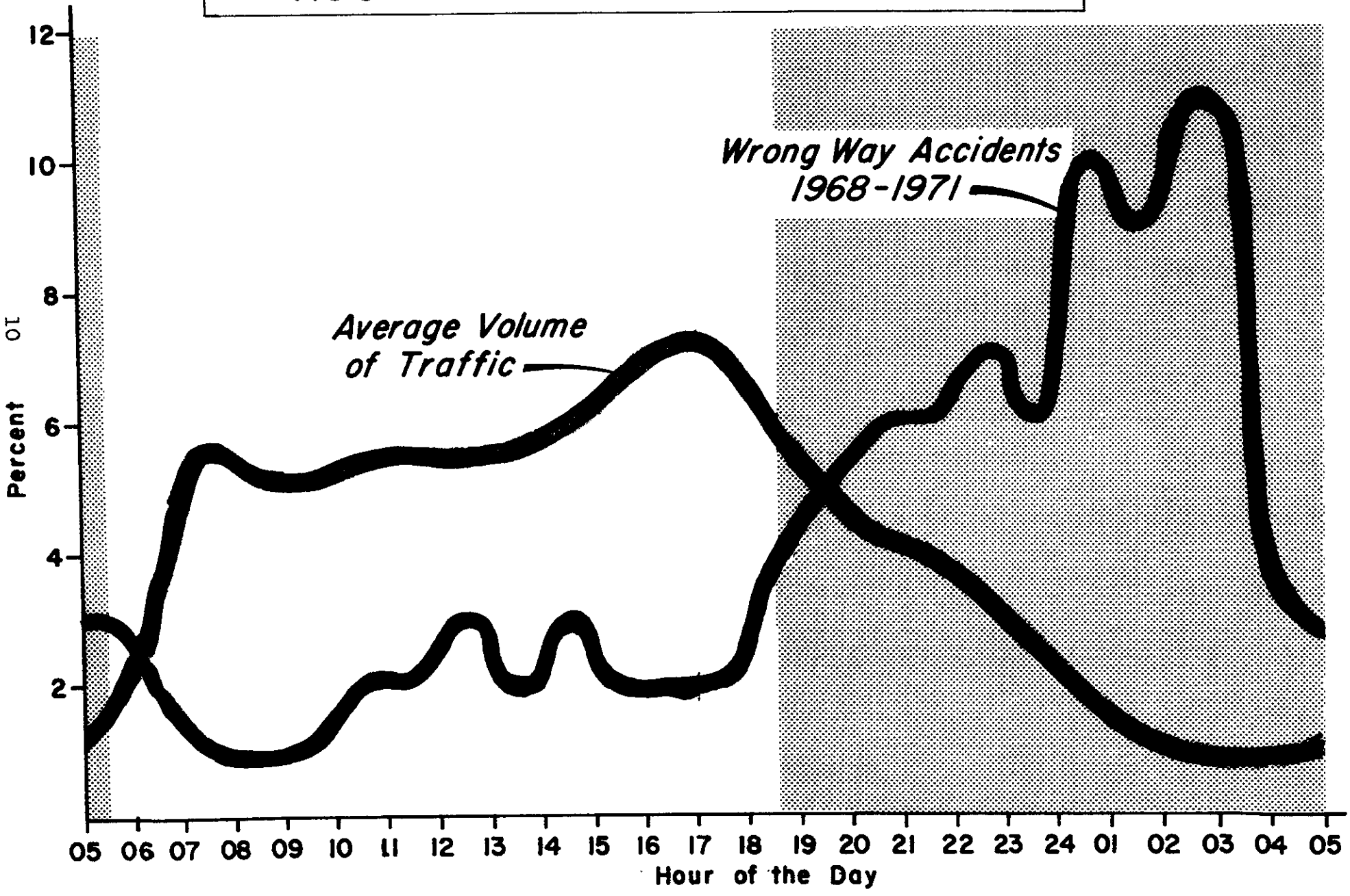
This opportunity can be measured in the increase in traffic volumes, as well as miles of freeway as shown on the graph on page 8. From 1963 to 1971 the freeway mileage in California more than doubled. Freeway travel increased 2-1/2 times; from 17 billion vehicle miles to 42 billion vehicle miles annually. It looks like we've been able to hold-the-line on wrong-way accidents and possibly even effect a small decrease since 1969. In 1971 wrong-way accidents were less than 1% of the total accidents on California freeways.

We continue, however, to consider wrong-way accidents to be a serious problem in California. Wrong-way accidents are one of our most severe types with about 18% resulting in fatalities and another 46% producing injuries. They account for about 6% of the fatalities on California freeways. While wrong-way accidents generally seem to occur on urban freeways and the more heavily traveled rural ones, no freeway can be considered immune to these accidents.

Through all of our research some factors regarding wrong-way driving have continued to be dominant. One of these is the fact that wrong-way accidents occur usually at night. The figure on page 10 shows the hourly distribution of the wrong-way accidents that occurred in the last four years. It also shows the average hourly distribution of traffic volumes on freeways.

The morning peak volume of traffic occurs between 7 and 8 a.m. Approximately 5 p.m. the maximum hourly volume is reached. From that point there is a steady decline until 3:30 a.m. when the smallest volumes are recorded.

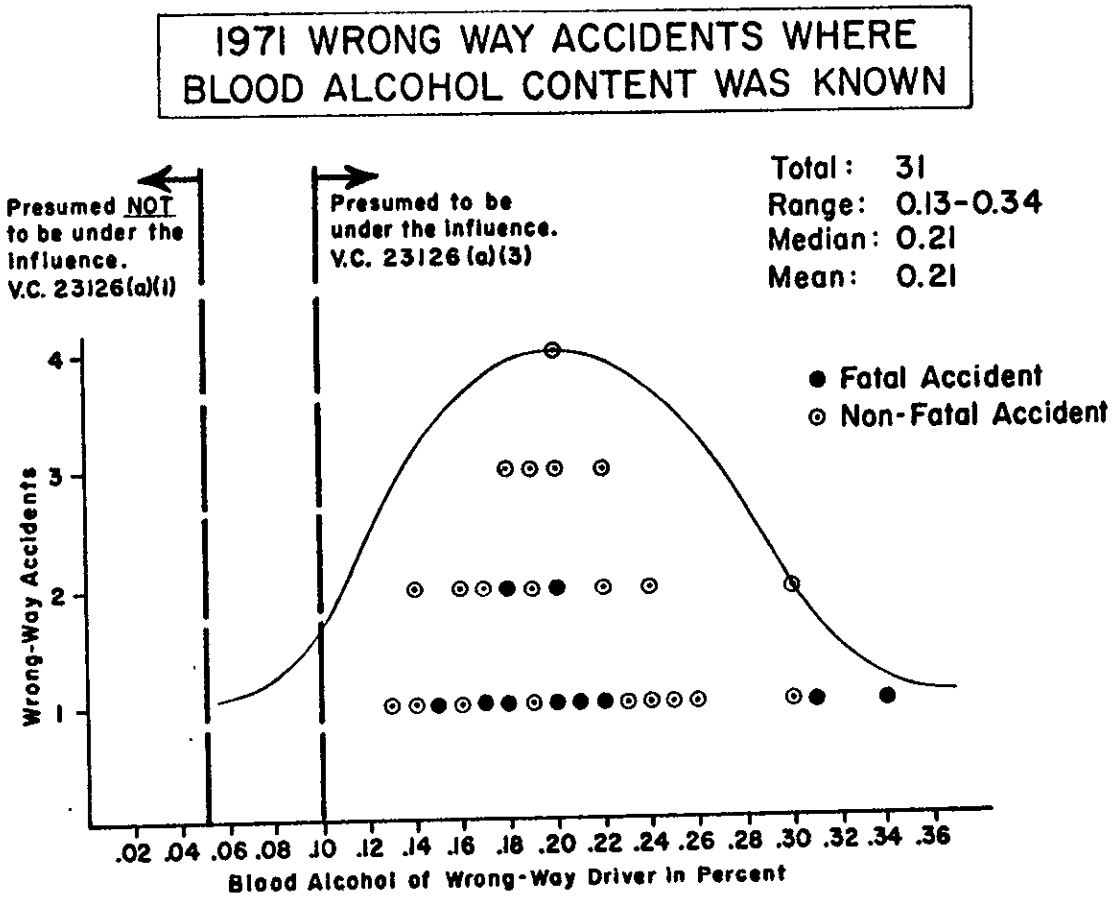
WRONG WAY ACCIDENTS & AVERAGE HOURLY VOLUMES ON FREEWAYS



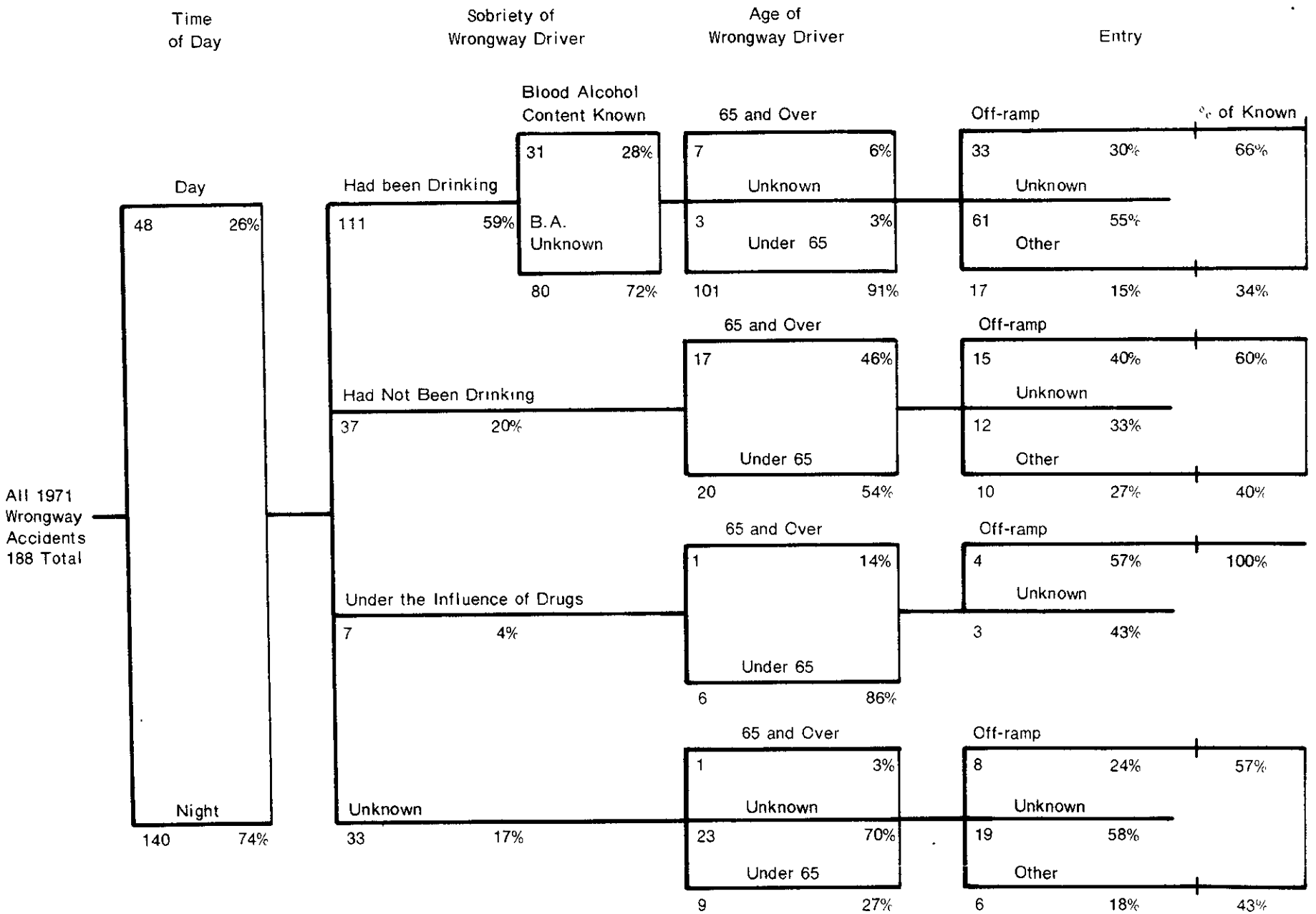
Wrong-way accidents occur at a rate above the travel rate between 8 p.m. and 6 a.m. This coincides fairly closely with the normal hours of darkness. The wrong-way accident rate rises during the evening hours, then drops off very rapidly after 2:30 a.m. One reason for this is that the bar closing time in California is 2 a.m., and after this time drinking drivers begin to get off the road.

This brings up another dominant factor in wrong-way accidents that we have observed - alcohol. Our studies have consistently shown that about 3 out of 4 wrong-way drivers who cause accidents have been drinking.

A plot of blood-alcohol levels of drivers who caused wrong-way accidents last year shows an extremely high range with an average over twice the level of presumed drunkeness in California. Our research has shown that a typical wrong-way driver not only drinks excessively, but also exhibits general disregard for all types of laws and social customs.



WRONGWAY ACCIDENTS ON FREEWAYS — 1971



Among the small number of wrong-way drivers who have not been drinking, only the 65-and-over age group stands out to any extent. These older drivers apparently get started the wrong-way more often than younger drivers and fail to realize their error as quickly.

On about 1/2 of the wrong-way accident reports for 1971, the reporting officer noted the way that the wrong-way driver got going in the wrong direction. These origins of wrong-way driving can be categorized as off-ramp entry and other methods. The other methods category includes various types of U-turns, such as: U-turns in the traffic lanes and U-turns from an on-ramp, as well as intentional median crossings. In 1971, off-ramp entries were noted on accident reports twice as often as other methods.

Another source of information about wrong-way driving is citations that are issued by the California Highway Patrol to violators of traffic laws. A copy of a typical citation for wrong-way driving is included in the Appendix.

Copies of these citations are reviewed in much the same manner as accident reports. In 1971 we received 273 copies of these citations. Wrong-way citations are fairly evenly divided between day and night, possibly because of higher enforcement levels in the daytime. Alcohol is a factor, but not to the extent that it appears in accidents. Older drivers are cited in considerable numbers. We have found that only about 40% of the wrong-way driving that results in citations is due to off-ramp entry.

Problem Of Deadly

Wrong-Way Freeway Driver

Grows More Acute

Officer Gary Galatioto inspects death scene

Photo by Don Hadynski

2 Dead in Wrong-Way

STATE STUDIES NEW APPROACHES

Wrong-Way Drivers: Can They Be Stopped?

June, 1970

Wrong-Way Cars: Any Answer?

RECENT EFFORTS

In 1970, with about 3,000 miles of full freeway, 38 fatal wrong-way accidents occurred in California resulting in 55 deaths.

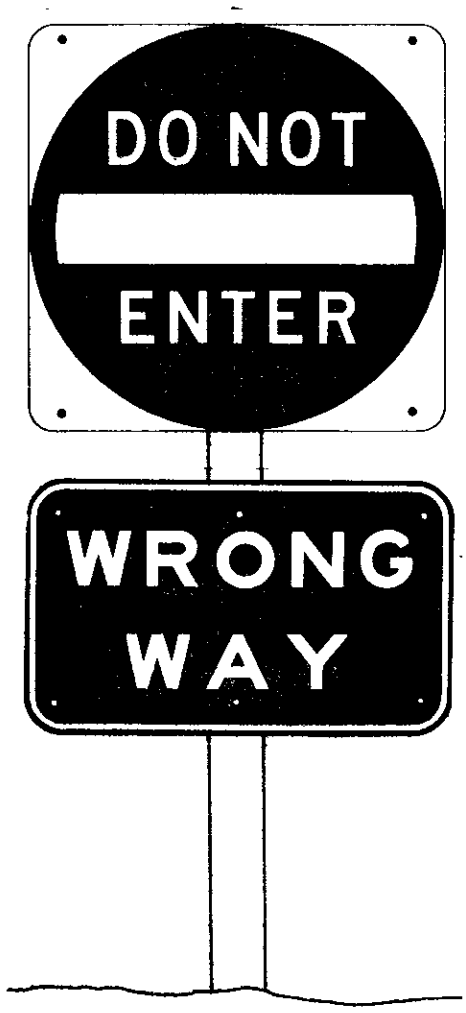
In June of that year, three wrong-way fatal accidents occurred in a single four-day period. The spectacular nature of these accidents led to intensive news coverage and renewed interest in wrong-way driving by the public and by the California Legislature. This renewed interest led to a re-evaluation of our efforts in this area and a new intensification of our activities.

In the fall of 1970 we undertook a statewide inspection of on- and off-ramp terminals to determine if our standard signing was in place and if it appeared to be doing the job. Inspection teams reviewed ramp terminals both in the daytime and at night taking photos and noting the conditions they found. An example of a typical inspection form is included in the Appendix. Some of the reviewers also found that small hand-held tape recorders were useful, especially when taking notes at night.

We learned many valuable things from this inspection. In general, we found that our standard signing was in place. Although many of the signs had been in the field for six years or more we found that their reflectivity was holding up well. Some pavement markings needed repainting. A few confusing situations that required investigation in greater depth were noted. Occasionally a sign was discovered to be missing or covered by shrubbery. Probably our most important discovery was that often the signs at our ramp terminals were not positioned for best nighttime visibility. In many cases a wrong-way vehicle would have to be almost into the off-ramp before its headlights illuminate the DO NOT ENTER and WRONG WAY signs. The same was true for FREEWAY ENTRANCE signs. This limited their effectiveness as guides to the on-ramp.

As a result of these findings, a committee of traffic engineers from various parts of the state was selected to review experimental placements of ramp signing and recommend new standards for California. This committee made field reviews during both day and night. The California Highway Patrol cooperated by temporarily closing ramps so that committee members could actually drive them the wrong way. The committee recommended that in general our ramp terminal signing be moved closer to the crossing street and mounted lower to better reflect headlights at night.

California's signing standards are being changed. In addition to placement changes, new formats are being used. International symbol-type DO NOT ENTER signs are appearing on our off-ramps.



Specification sheets are included in the Appendix.

The addition of route and direction information to FREEWAY ENTRANCE signs has value in calling attention to the on-ramp as well as giving motorists additional information. A new FREEWAY ENTRANCE sign with almost twice the reflective area will be used.

The following is an interpretation of this sign combination:

"This is the Freeway Entrance -

- to this route -

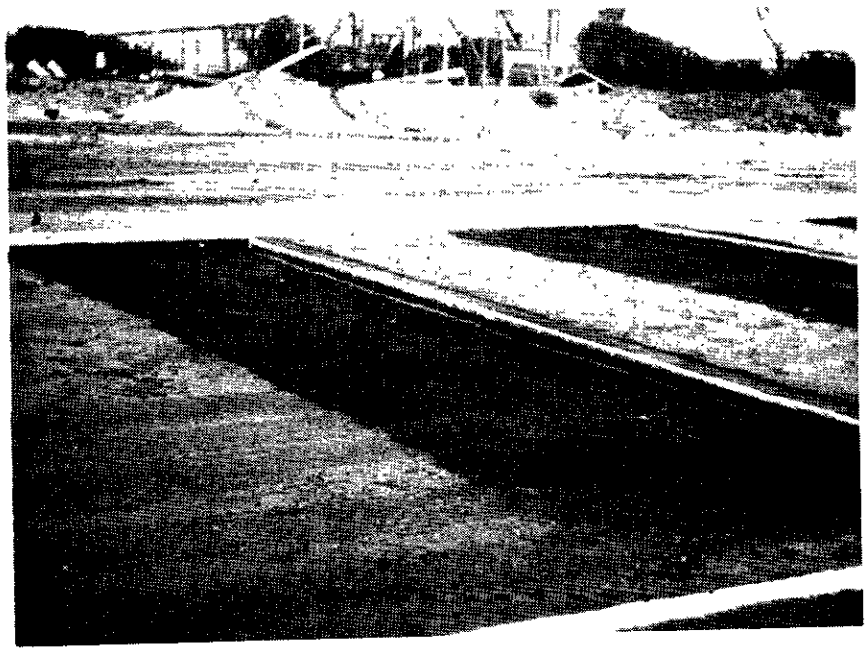
- going this direction.

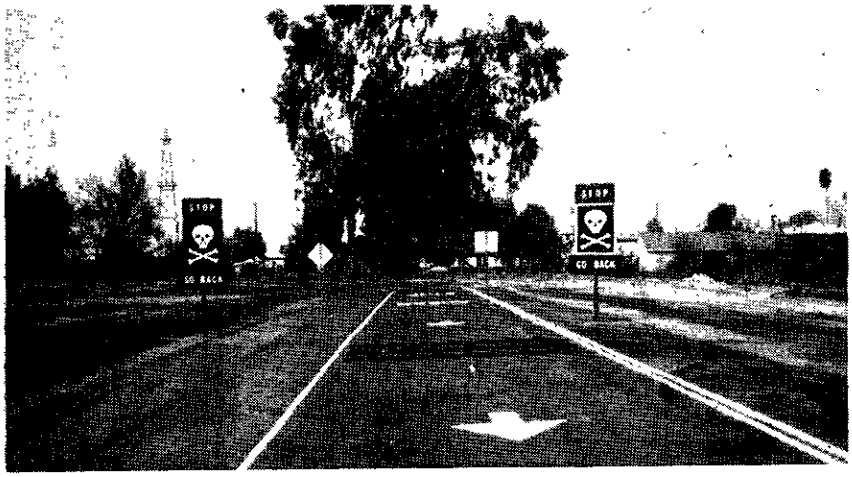
If this is the way you want to go, you should be here."

We are continuing to look at experimental signs and pavement markings. These include: internally illuminated signs for on-ramps and off-ramps and secondary off-ramp warning signs for placement some distance down the ramp. We have experimented with sparkly eyecatchers on signs and sign borders. Various configurations of reflective pavement markers are impressive when new, but are difficult to maintain.

Because of the apparent obliviousness of many wrong-way drivers to standard warnings, we are continuing to search for a more positive deterrent.

One potential warning device that we're currently looking at is a series of one-way bumps. These depressions in the off-ramp pavement would be designed to give a minimum of bump to right-way traffic but give a wrong-way driver a noticeable jolt. Their purpose would be to draw attention to a secondary sign package. On this page and the next are photos of the preliminary test installation of these bumps. In this prototype, the vertical face was covered with reflective tape. It was very impressive at night.





Because of the visual impact of reflective pavement markers and these bumps at night, we are also investigating ways of putting lights into the off-ramp pavement for use as a wrong-way warning device.

We have decided to enlist the help of industry in developing a wrong-way deterrent system. We are in the process of writing a request for proposals to build such a system. We have concluded that this system will have to operate without damaging either right-way or wrong-way vehicles. Although barriers that would physically stop or disable a vehicle are often suggested, we feel that the risk in using them is too great. During one of our studies, a movie camera mounted on an off-ramp filmed many wrong-way moves in progress. The following is an an analysis of some of that film:

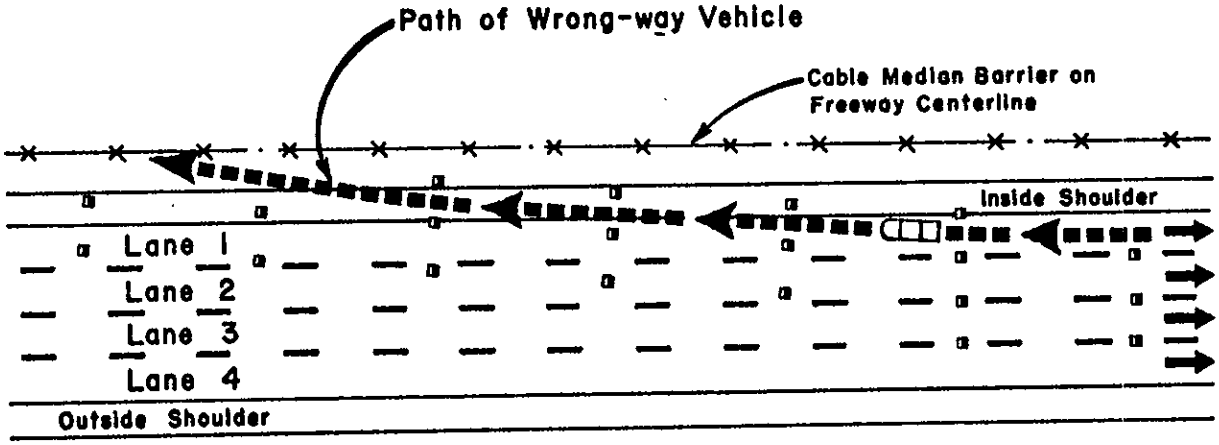
> The first frame shows the wrong-way car about 100 feet past the detector loops. In the second frame, the driver is taking evasive action to the shoulder on his left about 175 feet beyond the detector. The third frame (about four seconds later), shows the semitrailer passing the 175-foot location and going the right way about 45 mph.

If the wrong-way vehicle in this incident had been disabled by a device that we had placed on the ramp, a serious head-on collision would probably have occurred. This is one of the reasons why we have decided not to pursue the development of a disabling barrier.

For several years we have been using reflective pavement markers on lane lines in all but heavy snowfall areas in California. On freeways, 1/2 of each marker is red to show red to wrong-way drivers. Although it is a difficult thing to try to evaluate, we have no evidence that the red backs of these markers do prevent wrong-way driving. One study by ITTE in Los Angeles indicated that most people probably are not aware of the difference between red lane line markers and white ones.

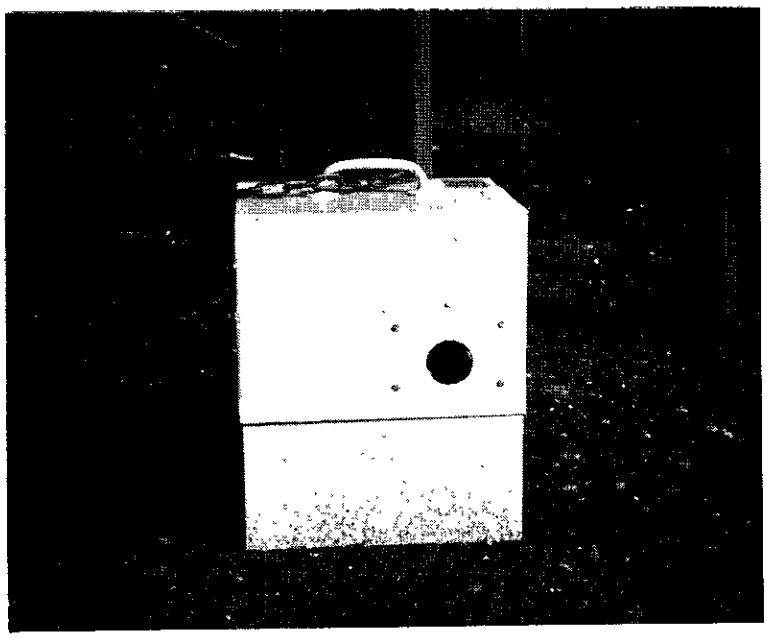
One idea that we considered was to use these markers to delineate a false lane for the wrong-way driver that would lead him off the traveled roadway and into the median barrier. Although the idea was appealing, it was rejected because of the increased liability of the State that might result if the trap caused injury to a wrong-way driver or others.

PROPOSED NIGHTTIME WRONG-WAY DRIVER TRAP



Obliterate the red side of the existing reflective pavement markers on lane lines for the length of the trap and 500 ft beyond.

Probably the most successful of our recent efforts to combat wrong-way driving is our program of off-ramp surveillance.



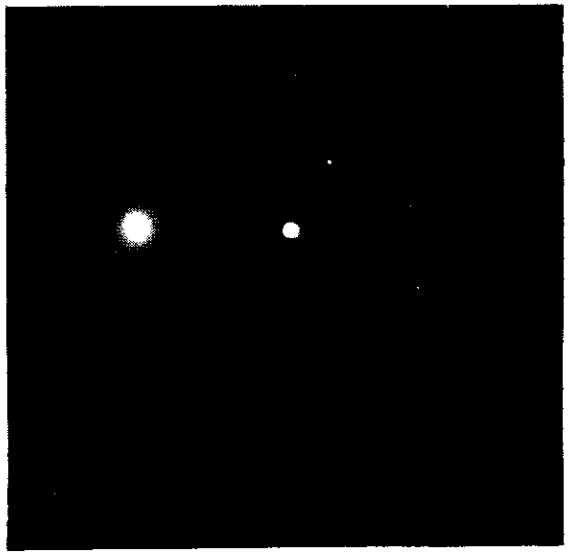
This piece of equipment, the wrong-way counter, is the tool that makes the program possible. It was conceived by one of our engineers and allows us to count and verify wrong-way moves into off-ramps with very good accuracy and reliability. It takes all the guesswork and subjectivity out of identifying high-move locations.

This counter is very portable, using pneumatic road tubes for its input. It can be moved from one location to another in a matter of minutes. Air pulses from the road tubes, which are located at the cross street terminal of the ramp, activate standard traffic counter switches.

Logic circuitry sorts movements by direction. When a wrong-way move is sensed, it is registered on an event counter. Current also flows to a solenoid that fires a small inexpensive camera. This camera takes a single picture to verify that the vehicle is proceeding the wrong way, not simply rolling backward momentarily, then advances the film for the next shot.

Wrong-Way Movements

Day



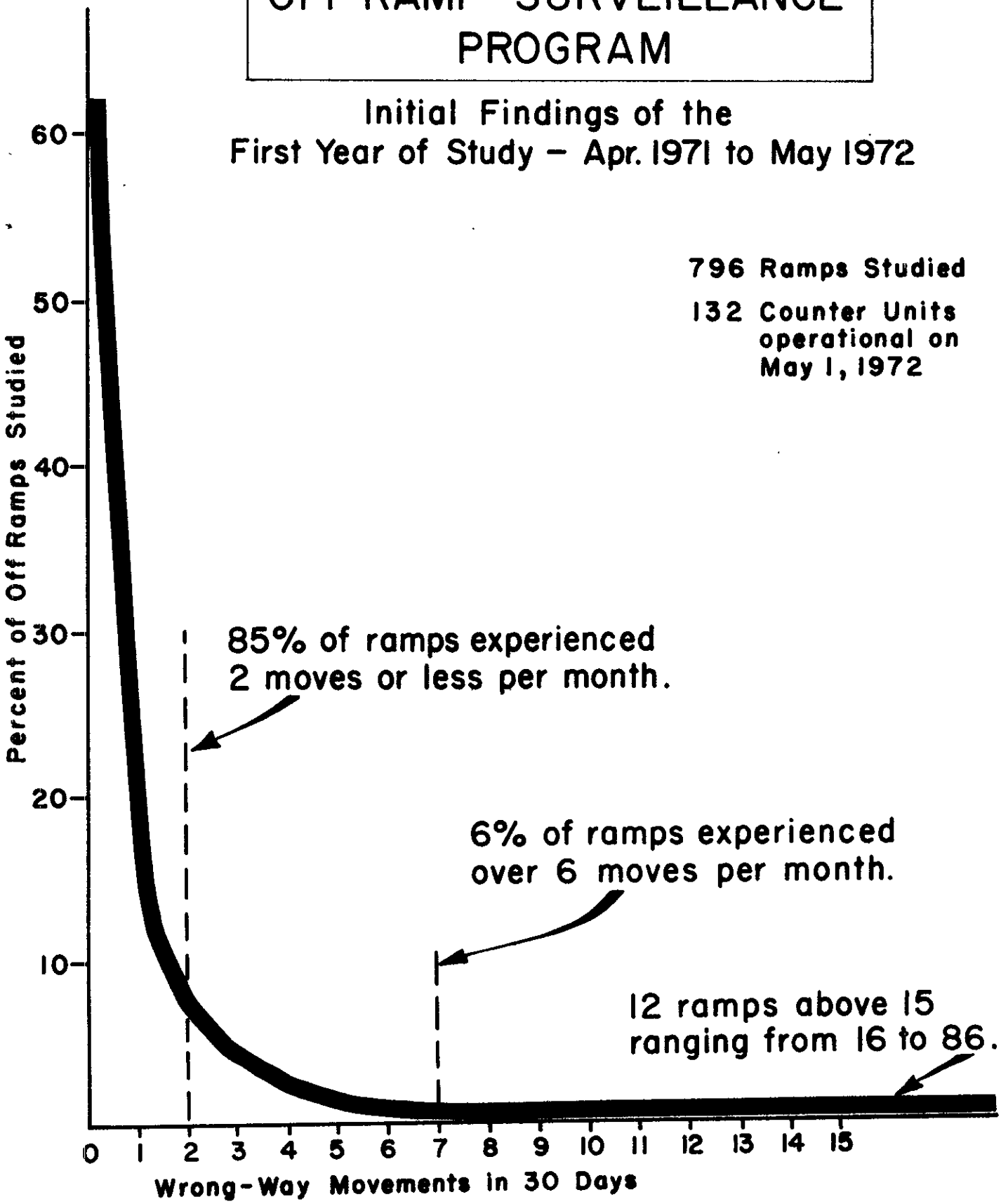
Night

These are typical photos taken by one of the cameras. The quality is usually not sufficient to get identifying data such as license numbers. They merely verify the wrong-way move.

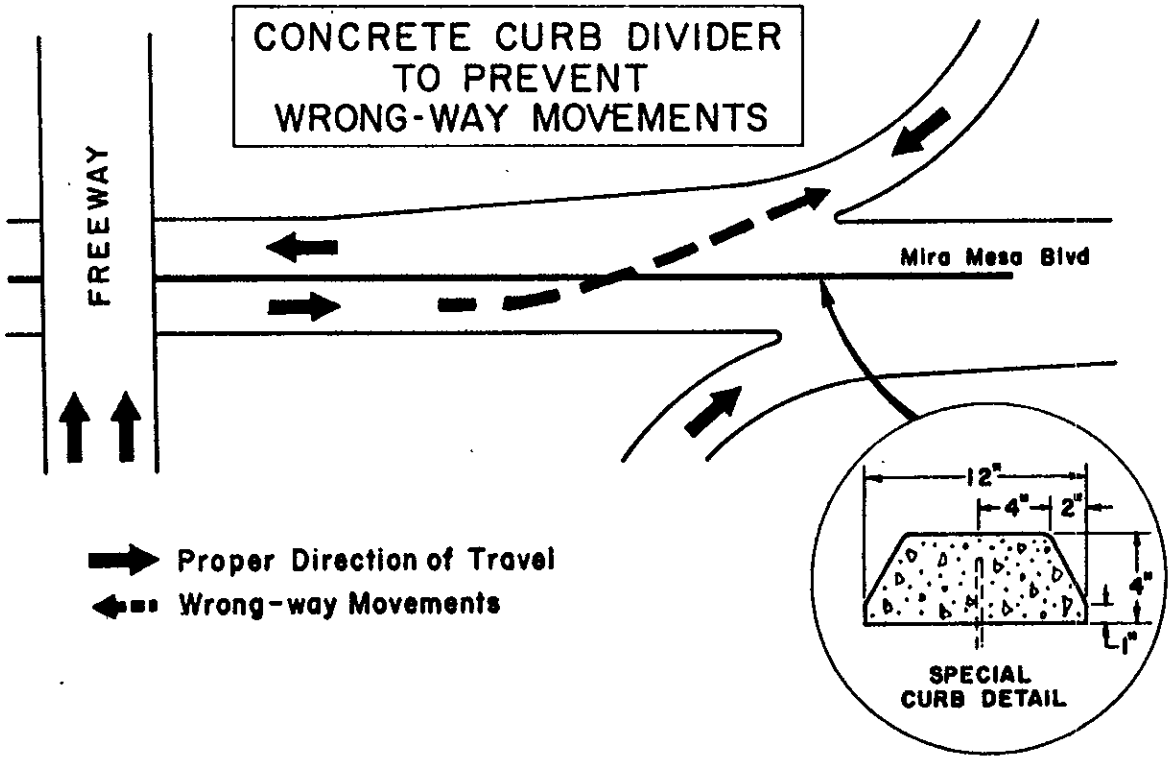
We have had 150 wrong-way counters operating throughout the State for a year. In that period of time we have checked nearly 800 ramps. We intend to continue until we have checked every ramp in the State. The graph on page 23 shows what we found in the first year. Note that in the 30-day study period, over 60% of the ramps checked experienced no wrong-way moves at all. We are finding that the great majority of wrong-way moves occur at a small number of so-called "problem" ramps. We have estimated that potential wrong-way drivers nose into off-ramps in California 70,000 times in a year. Our studies indicate that one in sixty of these, or about 1,200 per year, get as far as the freeway. If we could prevent the wrong-way moves on the worst 15% of our ramps, we would eliminate 60,000 moves per year. The wrong-way counter equipment tells us where to attack the problem and gives us a means of evaluating our efforts.

OFF RAMP SURVEILLANCE PROGRAM

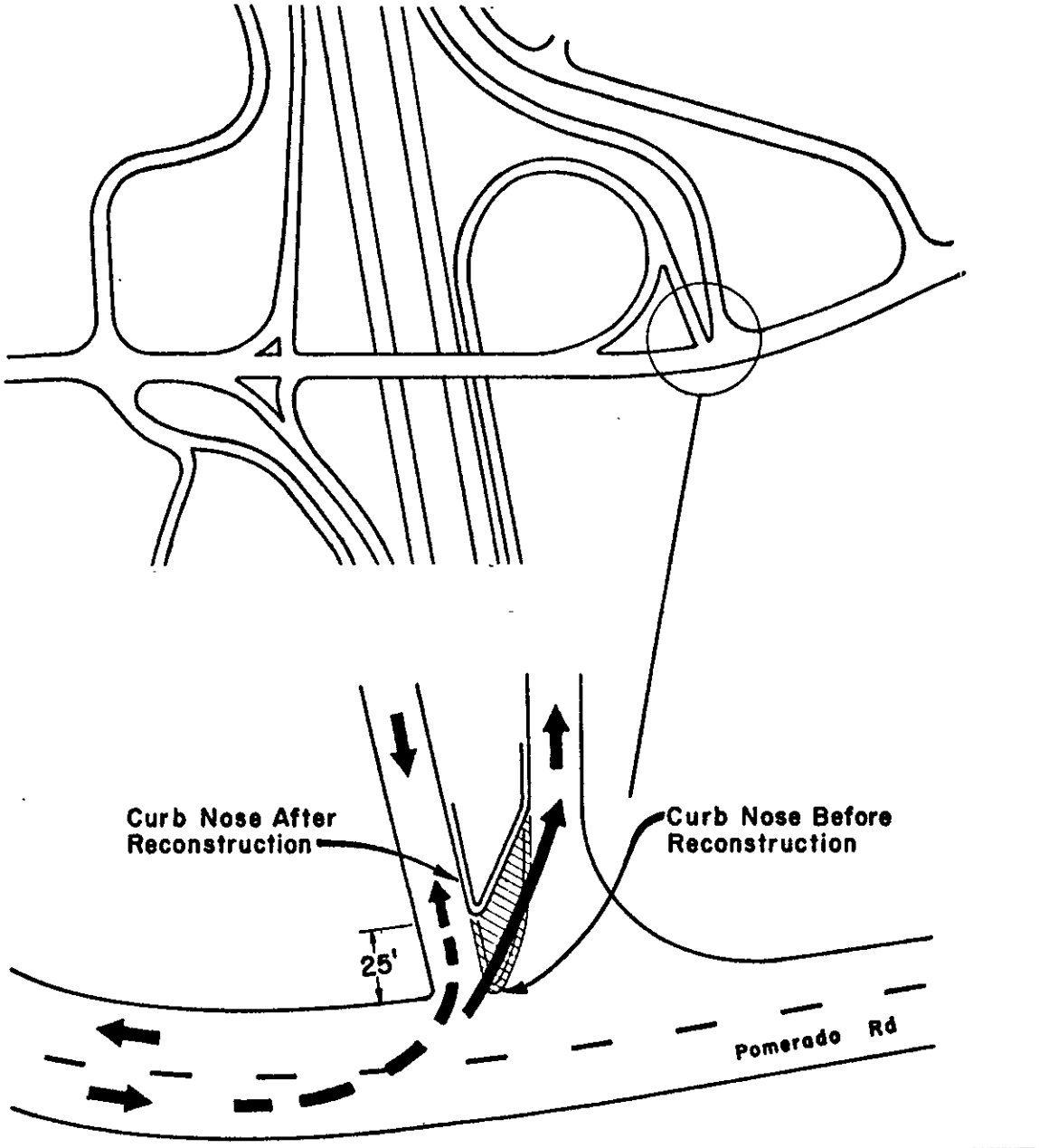
Initial Findings of the First Year of Study – Apr. 1971 to May 1972



The following are examples of the kinds of problems we've found and the corrective efforts we've made.



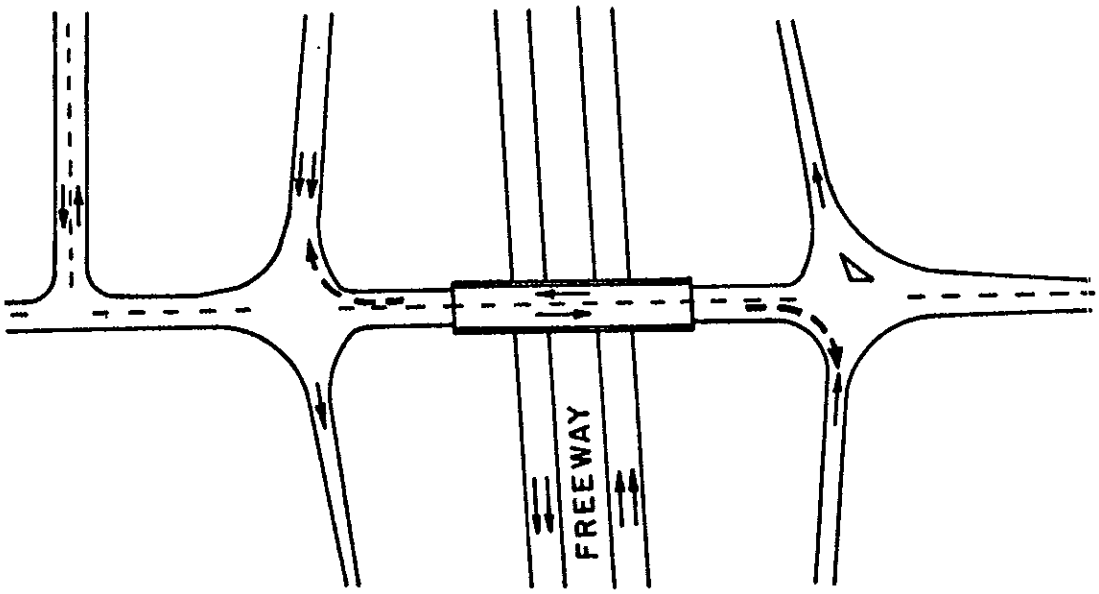
At this location wrong-way drivers were entering a loop off-ramp from an undivided two-way street. We were able to place a narrow curbed divider in the street to block this move.



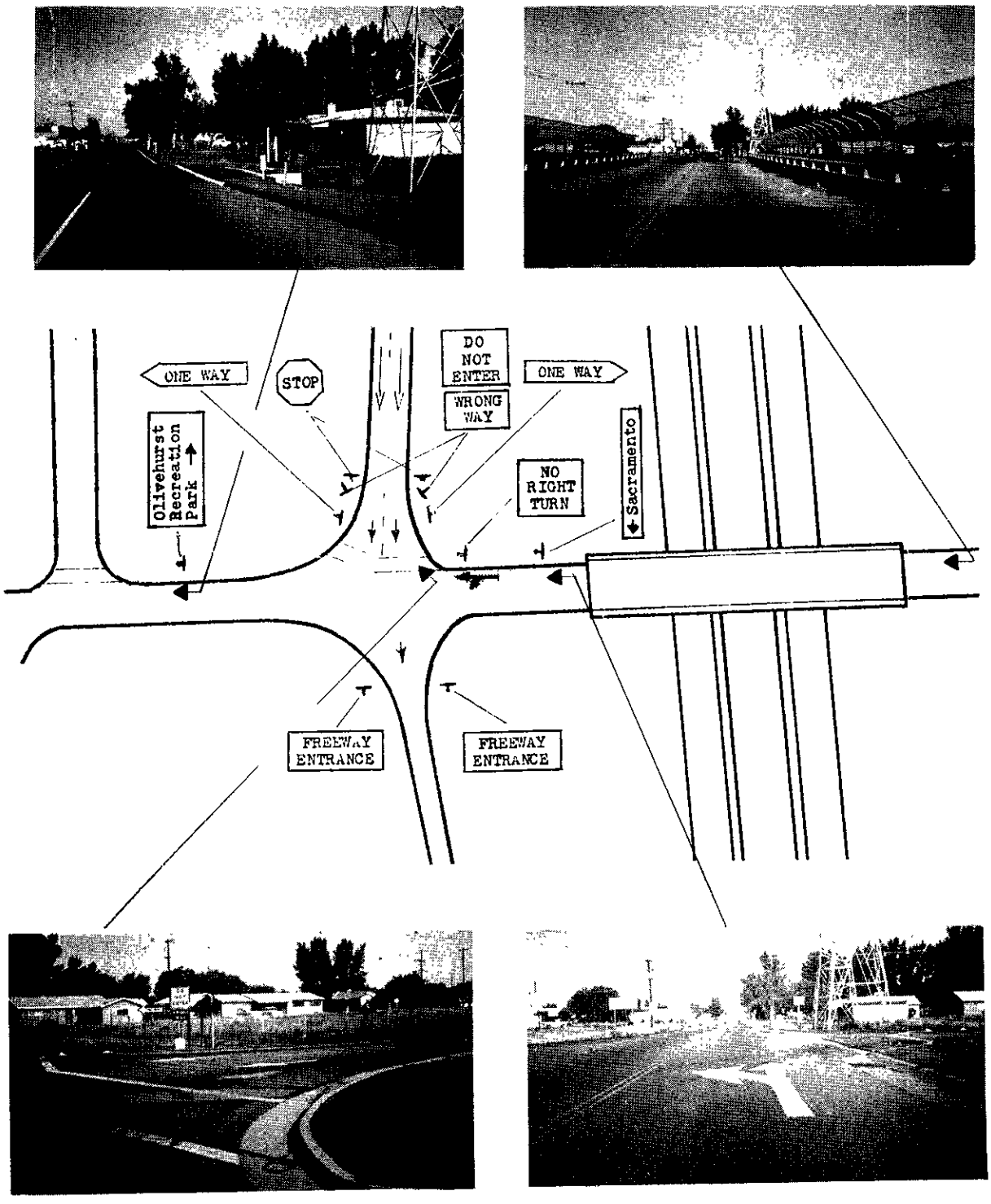
MODIFICATION OF CURB NOSE TO PREVENT WRONG-WAY MOVEMENTS

At this location the curbed divider between on- and off-ramps tended to hide the on-ramp and "trap" vehicles into the off-ramp. The nose was cut back.

A rather surprising kind of problem that we have found is sometimes referred to as the "phantom frontage road". It is surprising because it afflicts diamond interchanges, a type that we generally considered relatively free from wrong-way moves. Apparently drivers headed for the frontage road turn too soon and get into the off-ramp. So far, correcting this type of situation has been a fairly simple matter of signing and delineation changes.



DIAMOND INTERCHANGE WITH FRONTAGE ROAD



At this location a very sizeable wrong-way move problem was apparently eliminated by placing arrows on the pavement of the crossing street pointing away from the off-ramp.

Our wrong-way surveillance program has not gone unnoticed by the FHWA. They have recently encouraged acceleration of our effort by providing funding to allow us to expand the program and cut two years off the completion time.

SUMMARY AND RECOMMENDATIONS

In summary, we are continuing the battle against wrong-way driving in California on all fronts. By improving our highway standards, preventing wrong-way movements where we find them and continuing investigation of new concepts, we hope to save lives by continuing to decrease the number of these very persistent wrong-way accidents.

We hope the results of our experiences in California may in some way be of help to others. In order to combat wrong-way driving, we recommend:

1. Periodic inspections of all on-and-off terminals under both day and night conditions. Look for:

   a. Condition and placement of signs and delineation.

   b. Confusing and misleading signs or geometry.

2. Good maintenance of traffic control devices, including pavement markings.

3. A program of camera surveillance at least at suspected problem locations.

4. Good freeway interchange design and plenty of sight distance on the mainline.

APPENDIX

A. Sample Accident Report

B. Sample Wrong-Way Driving Citation

C. Sample Ramp Inspection Form

D. Sign Specification Sheets

TRAFFIC COLLISION REPORT — DEPARTMENT OF CALIFORNIA HIGHWAY PATROL

SPECIAL CONDITIONS: Wrong-Way | NO. INJ.: 0 | NO. KILLED: 0 | H & R FELONY: ☐ | H & R MISD: ☐ | CITY: San Diego | JUDICIAL DISTRICT: San Diego | COUNTY: San Diego | REPORTING DISTRICT: | BAT: 100 | No.:

LOCATION

COLLISION OCCURRED ON: SR 77 250's of P.M. SD8.08 | MO.: 4 | DAY: 26 | YR.: 71 | TIME(2400): 0208 | CII NO.: 9645 | OFFICER I.D.: 5032

☐ AT INTERSECTION WITH

☒ OR: 250 FEET/[redacted] S OF 2nd St. Exit

INJURY, FATAL OR TOW AWAY: ☐ YES ☒ NO | STATE HWY: ☒ YES ☐ NO

PARTY 1

DRIVER ☒ | PEDESTRIAN ☐ | PARKED VEH. ☐ | BICYCLIST ☐ | OTHER ☐

NAME (FIRST, MIDDLE, LAST): James Francis Jones

STREET ADDRESS: 681 Wistal Vista Dr.

DRIVER'S LICENSE NO.: P321123 | STATE: Cal. | BIRTHDATE MO.: 9 | DAY: 2 | YR.: 29 | SEX: M | RACE:

CITY: San Diego, | STATE: Cal. | PHONE: —

VEHICLE YR.: 70 | MAKE: Chev | LICENSE NO.: 793 DZG | STATE: Cal.

OWNER'S NAME: ☒ SAME AS DRIVER

DIRECTION OF TRAVEL: S | ON/[redacted] HIGHWAY): SR 77 (S/B in N/B lanes)

OWNER'S ADDRESS: ☒ SAME AS DRIVER

SPEED LIMIT: 65 | DISPOSITION OF VEHICLE: Bradley's Towing | ☐ BY DRIVER | ON ORDERS OF: CHP

VEHICLE DAMAGE — EXTENT: ☒ MINOR ☐ MOD. ☐ MAJOR ☐ TOTAL | LOCATION: Rt. Ft.

VIOLATION CHARGED: 1 ____ 2 ____

PARTY 2

DRIVER ☒ | PEDESTRIAN ☐ | PARKED VEH. ☐ | BICYCLIST ☐ | OTHER ☐

NAME (FIRST, MIDDLE, LAST): John Albert Doe

STREET ADDRESS: 2697 Winton Ave.

DRIVER'S LICENSE NO.: M821054 | STATE: Cal. | BIRTHDATE MO.: 3 | DAY: 8 | YR.: 36 | SEX: M | RACE:

CITY: San Diego, Cal. | STATE: | PHONE: 213-2717

VEHICLE YR.: 64 | MAKE: Chev | LICENSE NO.: 030 547 | STATE: Cal.

OWNER'S NAME: ☒ SAME AS DRIVER

DIRECTION OF TRAVEL: N | ON/[redacted] OR HIGHWAY): SR 77

OWNER'S ADDRESS: ☒ SAME AS DRIVER

SPEED LIMIT: 65 | DISPOSITION OF VEHICLE: Driven away | ☒ BY DRIVER | ON ORDERS OF:

VEHICLE DAMAGE — EXTENT: ☒ MINOR ☐ MOD. ☐ MAJOR ☐ TOTAL | LOCATION: Rt. Rear

VIOLATION CHARGED: 1 ____ 2 ____

PROPERTY

DESCRIPTION OF DAMAGE:

OWNER'S NAME: | ADDRESS: | NOTIFIED ☐ YES ☐ NO

INJURED/WITNESS

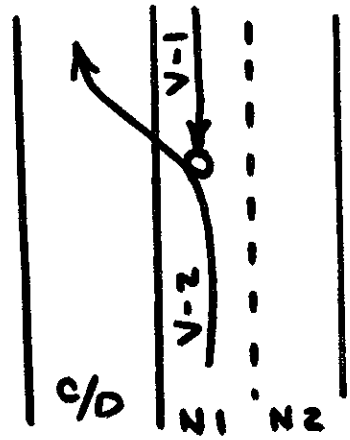
WITNESS ONLY	AGE	SEX	EXTENT OF INJURY: FATAL INJURY	SEVERE WOUND DISTORTED MEMBER	OTHER VISIBLE INJURIES	COMPLAINT OF PAIN	INJURED WAS (check one): DRIVER	PASS.	PED.	BI-CYCLIST	OTHER	IN VEH. NUMBER
☐			☐	☐	☐	☐	☐	☐	☐	☐	☐	

NAME: | PHONE: | ADDRESS: | TAKEN TO (INJURED ONLY):

NAME: | PHONE: | ADDRESS: | TAKEN TO (INJURED ONLY):

NAME: | PHONE: | ADDRESS: | TAKEN TO (INJURED ONLY):

SKETCH



MISCELLANEOUS

SAMPLE WRONG-WAY ACCIDENT REPORT

VEHICLE TYPE			
PARTY 1	01	PARTY 2	01

	ROAD TYPE
	A CONVENTIONAL, ONE WAY
	B CONVENTIONAL, TWO WAY
	C EXPRESSWAY
X	D FREEWAY
	E OTHER (EXPLAIN IN NARRATIVE)

No.

PAGE _____

COLLISION NARRATIVE

PRIMARY COLLISION FACTOR

- A VC SECTION VIOLATION _____
- B OTHER IMPROPER DRIVING*
- C OTHER THAN DRIVER*
- D UNKNOWN*

WEATHER

- A CLEAR
- B CLOUDY
- C RAINING
- D SNOWING
- E FOG
- F OTHER _____

LIGHTING

- A DAYLIGHT
- B DUSK - DAWN
- C DARK - STREET LIGHTS
- D DARK - NO STREET LIGHTS
- E DARK - STREET LIGHTS NOT FUNCTIONING

ROADWAY SURFACE

- A DRY
- B WET
- C SNOWY - ICY
- D SLIPPERY (MUDDY, OILY, ETC.)

ROADWAY CONDITIONS (MARK ONE TO THREE ITEMS)

- A HOLES, DEEP RUTS
- B LOOSE MATERIAL ON ROADWAY
- C OBSTRUCTION ON ROADWAY
- D CONSTRUCTION-REPAIR ZONE
- E REDUCED ROADWAY WIDTH
- F FLOODED
- G OTHER _____
- H NO UNUSUAL CONDITIONS

RIGHT OF WAY CONTROL

- A CONTROLS FUNCTIONING
- B CONTROLS NOT FUNCTIONING
- C CONTROLS OBSCURED
- D NO CONTROLS PRESENT

TYPE OF COLLISION

- A HEAD-ON
- B SIDESWIPE
- C REAR END
- D BROADSIDE
- E HIT OBJECT
- F OVERTURNED
- G AUTO/PEDESTRIAN
- H OTHER _____

MOTOR VEHICLE INVOLVED WITH

- A NON-COLLISION
- B PEDESTRIAN
- C OTHER MOTOR VEHICLE
- D MOTOR VEHICLE ON OTHER ROADWAY
- E PARKED MOTOR VEHICLE
- F TRAIN
- G BICYCLE
- H ANIMAL _____
- I FIXED OBJECT _____
- J OTHER OBJECT _____
- K OTHER _____

PEDESTRIAN'S ACTION

- A NO PEDESTRIAN INVOLVED
- B CROSSING IN CROSSWALK AT INTERSECTION
- C CROSSING IN CROSSWALK - NOT AT INTERSECTION
- D CROSSING - NOT IN CROSSWALK
- E IN ROAD - INCLUDES SHOULDER
- F NOT IN ROAD
- G APPROACHING/LEAVING SCHOOL BUS

1	2	3	4	TYPE OF VEHICLE
				A PASSENGER CAR (INCLUDES STATION WAGON)
				B PASSENGER CAR W/TRAILER
				C MOTORCYCLE/SCOOTER
				D PICKUP OR PANEL TRUCK
				E PICKUP OR PANEL TRUCK W/TRAILER
				F TRUCK OR TRUCK TRACTOR
				G TRUCK OR TRUCK TRACTOR W/TRAILER(S)
				H SCHOOL BUS
				I OTHER BUS
				J EMERGENCY VEHICLE
				K HIGHWAY CONSTRUCTION EQUIPMENT
				L BICYCLE
				M OTHER _____

1	2	3	4	OTHER ASSOCIATED FACTOR (MARK ONE TO THREE ITEMS)
	■	■	■	A VC SECTION VIOLATION _____
■		■	■	B VC SECTION VIOLATION _____
■	■		■	C VC SECTION VIOLATION _____
■	■	■		D VC SECTION VIOLATION _____
				E VISION OBSCUREMENTS _____
				F INATTENTION
				G STOP & GO TRAFFIC
				H ENTERING/LEAVING RAMP
				I PREVIOUS COLLISION
				J UNFAMILIAR WITH ROAD
				K DEFECTIVE VEHICLE EQUIPMENT _____
				L UNINVOLVED VEHICLE
				M OTHER*
				N NONE APPARENT

1	2	3	4	MOVEMENT PRECEDING COLLISION
				A STOPPED
				B PROCEEDING STRAIGHT
				C RAN OFF ROAD
				D MAKING RIGHT TURN
				E MAKING LEFT TURN
				F MAKING U TURN
				G BACKING
				H SLOWING - STOPPING
				I PASSING OTHER VEHICLE
				J CHANGING LANES
				K PARKING MANEUVER
				L ENTERING TRAFFIC FROM SHOULDER, MEDIAN, PARKING STRIP OR PRIVATE DRIVE
				M OTHER UNSAFE TURNING
				N CROSSED INTO OPPOSING LANE
				O PARKED
				P MERGING
				Q TRAVELING WRONG WAY*
				R OTHER _____

1	2	3	4	SOBRIETY - DRUG - PHYSICAL (MARK ONE TO THREE ITEMS)
				A HAD NOT BEEN DRINKING
				B HBD - UNDER INFLUENCE
				C HBD - NOT UNDER INFLUENCE
				D HBD - IMPAIRMENT UNKNOWN*
				E UNDER DRUG INFLUENCE
				F OTHER PHYSICAL IMPAIRMENT*
				G IMPAIRMENT NOT KNOWN
				H NOT APPLICABLE

INVESTIGATED BY	I.D. NUMBER	INVESTIGATED BY	I.D. NUMBER	REVIEWED BY

*EXPLAIN IN NARRATIVE

TRAFFIC COLLISION REPORT — DEPARTMENT OF CALIFORNIA HIGHWAY PATROL

PAGE _____ OF _____

SPECIAL CONDITIONS | NO. INJ. | NO. KILLED | H & R FELONY ☐ | H & R MISD ☐ | CITY | JUDICIAL DISTRICT | COUNTY | REPORTING DISTRICT | BEAT | No.

LOCATION

COLLISION OCCURRED ON | MO. DAY YR. | TIME(2400) | CII NO. | OFFICER I.D.

☐ AT INTERSECTION WITH
☐ OR: _____ FEET/MILES _____ OF

INJURY, FATAL OR TOW AWAY ☐ YES ☐ NO | STATE HWY ☐ YES ☐ NO

PARTY 1

NAME (FIRST, MIDDLE, LAST) | STREET ADDRESS

DRIVER ☐ | DRIVER'S LICENSE NO. | STATE | BIRTHDATE MO. DAY YR. | SEX | RACE | CITY | STATE | PHONE

PEDES-TRIAN ☐ | VEHICLE YR. | MAKE | LICENSE NO. | STATE | OWNER'S NAME ☐ SAME AS DRIVER

PARKED VEH. ☐ | DIRECTION OF TRAVEL | ON/ACROSS (STREET OR HIGHWAY) | OWNER'S ADDRESS ☐ SAME AS DRIVER

BI-CYCLIST ☐ | SPEED LIMIT | DISPOSITION OF VEHICLE ☐ BY DRIVER | ON ORDERS OF | VEHICLE DAMAGE EXTENT ☐ MINOR ☐ MOD. ☐ MAJOR ☐ TOTAL | LOCATION | VIOLATION CHARGED 1 _____ 2 _____

OTHER ☐

PARTY 2

NAME (FIRST, MIDDLE, LAST) | STREET ADDRESS

DRIVER ☐ | DRIVER'S LICENSE NO. | STATE | BIRTHDATE MO. DAY YR. | SEX | RACE | CITY | STATE | PHONE

PEDES-TRIAN ☐ | VEHICLE YR. | MAKE | LICENSE NO. | STATE | OWNER'S NAME ☐ SAME AS DRIVER

PARKED VEH. ☐ | DIRECTION OF TRAVEL | ON/ACROSS (STREET OR HIGHWAY) | OWNER'S ADDRESS ☐ SAME AS DRIVER

BI-CYCLIST ☐ | SPEED LIMIT | DISPOSITION OF VEHICLE ☐ BY DRIVER | ON ORDERS OF | VEHICLE DAMAGE EXTENT ☐ MINOR ☐ MOD. ☐ MAJOR ☐ TOTAL | LOCATION | VIOLATION CHARGED 1 _____ 2 _____

OTHER ☐

PROPERTY

DESCRIPTION OF DAMAGE

OWNER'S NAME | ADDRESS | NOTIFIED ☐ YES ☐ NO

INJURED/WITNESS

WITNESS ONLY	AGE	SEX	EXTENT OF INJURY: FATAL INJURY	SEVERE WOUND DISTORTED MEMBER	OTHER VISIBLE INJURIES	COMPLAINT OF PAIN	INJURED WAS (check one): DRIVER	PASS.	PED.	BI-CYCLIST	OTHER	IN VEH. NUMBER
☐			☐	☐	☐	☐	☐	☐	☐	☐	☐	

NAME | PHONE

ADDRESS | TAKEN TO (INJURED ONLY)

(repeat)

NAME | PHONE

ADDRESS | TAKEN TO (INJURED ONLY)

(repeat)

NAME | PHONE

ADDRESS | TAKEN TO (INJURED ONLY)

SKETCH

INDICATE NORTH

MISCELLANEOUS

VEHICLE TYPE

PARTY 1 | PARTY 2

ROAD TYPE

- A CONVENTIONAL, ONE WAY
- B CONVENTIONAL, TWO WAY
- C EXPRESSWAY
- D FREEWAY
- E OTHER (EXPLAIN IN NARRATIVE)

NO. 0208-5032

COLLISION NARRATIVE

Facts - Rec call of wrongway driver S/B in N/B lanes near 4th St @ 0207. Arrived @ T.C. 0210 SR 77 is a 4 lane divided frwy with 35' dirt center divider. Drivers @ scene - no injuries. Vehs found in C/D. D-1 had an odor of an alcoholic beverage on his breath. D-1 failed roadside sobriety test. Blood sample taken. D-1 arrested for 23102O V.C.

Statements - D-1 stated he must have made a wrong turn. D-2 stated he saw V-1 coming in his lane so he swerved into the divider.

Opinions and Conclusions - D-1 was under the influence of alcohol and made a turn onto SR 77 from 4th St going S/B in N/B lanes. D-1 was S/B in the N1 lane when he came upon D-2. D-2 swerved into the C/D and was hit in the Rt. Rear by the Rt. Ft. of V-1.

PRIMARY COLLISION FACTOR
- A VC SECTION VIOLATION 23102a
- B OTHER IMPROPER DRIVING*
- C OTHER THAN DRIVER*
- D UNKNOWN*

WEATHER
- X A CLEAR
- B CLOUDY
- C RAINING
- D SNOWING
- E FOG
- F OTHER

LIGHTING
- A DAYLIGHT
- B DUSK - DAWN
- C DARK - STREET LIGHTS
- X D DARK - NO STREET LIGHTS
- E DARK - STREET LIGHTS NOT FUNCTIONING

ROADWAY SURFACE
- X A DRY
- B WET
- C SNOWY - ICY
- D SLIPPERY (MUDDY, OILY, ETC.)

ROADWAY CONDITIONS (MARK ONE TO THREE ITEMS)
- A HOLES, DEEP RUTS
- B LOOSE MATERIAL ON ROADWAY
- C OBSTRUCTION ON ROADWAY
- D CONSTRUCTION-REPAIR ZONE
- E REDUCED ROADWAY WIDTH
- F FLOODED
- G OTHER
- X H NO UNUSUAL CONDITIONS

RIGHT OF WAY CONTROL
- A CONTROLS FUNCTIONING
- B CONTROLS NOT FUNCTIONING
- C CONTROLS OBSCURED
- X D NO CONTROLS PRESENT

TYPE OF COLLISION
- A HEAD-ON
- X B SIDESWIPE
- C REAR END
- D BROADSIDE
- E HIT OBJECT
- F OVERTURNED
- G AUTO/PEDESTRIAN
- H OTHER

MOTOR VEHICLE INVOLVED WITH
- A NON-COLLISION
- B PEDESTRIAN
- X C OTHER MOTOR VEHICLE
- D MOTOR VEHICLE ON OTHER ROADWAY
- E PARKED MOTOR VEHICLE
- F TRAIN
- G BICYCLE
- H ANIMAL
- I FIXED OBJECT
- J OTHER OBJECT
- K OTHER

PEDESTRIAN'S ACTION
- X A NO PEDESTRIAN INVOLVED
- B CROSSING IN CROSSWALK AT INTERSECTION
- C CROSSING IN CROSSWALK - NOT AT INTERSECTION
- D CROSSING - NOT IN CROSSWALK
- E IN ROAD - INCLUDES SHOULDER
- F NOT IN ROAD
- G APPROACHING/LEAVING SCHOOL BUS

1	2	3	4	TYPE OF VEHICLE
X	X			A PASSENGER CAR (INCLUDES STATION WAGON)
				B PASSENGER CAR W/TRAILER
				C MOTORCYCLE/SCOOTER
				D PICKUP OR PANEL TRUCK
				E PICKUP OR PANEL TRUCK W/TRAILER
				F TRUCK OR TRUCK TRACTOR
				G TRUCK OR TRUCK TRACTOR W/TRAILER(S)
				H SCHOOL BUS
				I OTHER BUS
				J EMERGENCY VEHICLE
				K HIGHWAY CONSTRUCTION EQUIPMENT
				L BICYCLE
				M OTHER

1	2	3	4	OTHER ASSOCIATED FACTOR (MARK ONE TO THREE ITEMS)
X				A VC SECTION VIOLATION 21651
				B VC SECTION VIOLATION
				C VC SECTION VIOLATION
				D VC SECTION VIOLATION
				E VISION OBSCUREMENTS
				F INATTENTION
				G STOP & GO TRAFFIC
				H ENTERING/LEAVING RAMP
				I PREVIOUS COLLISION
				J UNFAMILIAR WITH ROAD
				K DEFECTIVE VEHICLE EQUIPMENT
				L UNINVOLVED VEHICLE
				M OTHER*
		X		N NONE APPARENT

1	2	3	4	MOVEMENT PRECEDING COLLISION
				A STOPPED
	X			B PROCEEDING STRAIGHT
				C RAN OFF ROAD
				D MAKING RIGHT TURN
				E MAKING LEFT TURN
				F MAKING U TURN
				G BACKING
				H SLOWING - STOPPING
				I PASSING OTHER VEHICLE
				J CHANGING LANES
				K PARKING MANEUVER
				L ENTERING TRAFFIC FROM SHOULDER, MEDIAN, PARKING STRIP OR PRIVATE DRIVE
				M OTHER UNSAFE TURNING
				N CROSSED INTO OPPOSING LANE
				O PARKED
				P MERGING
X				Q TRAVELING WRONG WAY*
				R OTHER

1	2	3	4	SOBRIETY - DRUG - PHYSICAL (MARK ONE TO THREE ITEMS)
	X			A HAD NOT BEEN DRINKING
X				B HBD - UNDER INFLUENCE
				C HBD - NOT UNDER INFLUENCE
				D HBD - IMPAIRMENT UNKNOWN*
				E UNDER DRUG INFLUENCE
				F OTHER PHYSICAL IMPAIRMENT*
				G IMPAIRMENT NOT KNOWN
				H NOT APPLICABLE

INVESTIGATED BY	I.D. NUMBER	INVESTIGATED BY	I.D. NUMBER	REVIEWED BY
Sam Smith	5032			

*EXPLAIN IN NARRATIVE

CALIFORNIA HIGHWAY PATROL

NOTICE TO APPEAR N 250001

DATE: June 5 19 71 | TIME: 1:45 PM | DAY OF WEEK: Monday

NAME (FIRST, MIDDLE, LAST): Rodney James Johnson

RESIDENCE ADDRESS (ST. OR ROAD): 1583 Maple St, CITY: San Jose ZIP CODE:

BUSINESS ADDRESS: CITY: ZIP CODE:

DRIVER'S LICENSE NO.: N.I.P. STATE: BIRTHDATE: 5-10-01

SEX: M | HAIR: Gray | EYES: Blue | HEIGHT: 5'8" | WEIGHT: 165

VEHICLE LICENSE NO.: VND 875 STATE: Calif.

YEAR OF VEH. | MAKE | BODY STYLE | COLOR

REGISTERED OWNER OR LESSEE

RESIDENCE ADDRESS (ST. OR ROAD): Same CITY: ZIP CODE:

VIOLATION(S)

① 21651 VC - Driving to left of Center Divided N/B in S/B lanes

② 12951 a VC - No Drivers' license

BOOKING REQUIRED ☐

SPEED APPROX.	SPEED P.F./MAX.	SPEED VEH. LMT.	SPEED SAFE	AREA	BEAT	A.I.	SPECIAL
20	65			203	836		

LOCATION OF VIOLATION(S): I-880 So. of Rte. 6

☐ OFFENSE(S) NOT COMMITTED IN MY PRESENCE. CERTIFIED ON INFORMATION AND BELIEF.

I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.
EXECUTED ON THE DATE SHOWN ABOVE AT (PLACE) CALIF.

ISSUING OFFICER: T. I. Friday I.D.: 1363 VAC. DATES FR: TO:

NAME OF ARRESTING OFFICER-IF DIFFERENT FROM ABOVE I.D. PERM. AREA: 203

WITHOUT ADMITTING GUILT, I PROMISE TO APPEAR AT THE TIME AND PLACE CHECKED BELOW

X SIGNATURE: Rod J. Johnson

☒ MUNICIPAL COURT ☐ JUSTICE COURT ☐ JUVENILE COURT

☐ TO BE NOTIFIED OF TIME AND PLACE

ADDRESS (ST. AND CITY): RM 100 County Court, Pine & Main St.

☒ ON THE 26 DAY OF June 19 71 AT 9:30 A.M. ☐ WITHIN 11 DAYS

☐ OR YOU MAY APPEAR AT P.M. ON

TO ANSWER CHARGES OF VIOLATION(S) DESCRIBED ABOVE.

FORM APPROVED BY JUDICIAL COUNCIL OF CALIFORNIA 11-10-69 V.C. 40513(B) P.C. 853.9
CHP FORM 215 (REV. 10-71)

SAMPLE WRONG-WAY DRIVING CITATION

Mr. Johnson was going S/B on Rte. 806

He decided to return home, became confused, and made a U-turn in the S/B lanes.

His eyesight is very bad. He was refused a drivers license by the Dept. of Motor Vehicles in 1960.

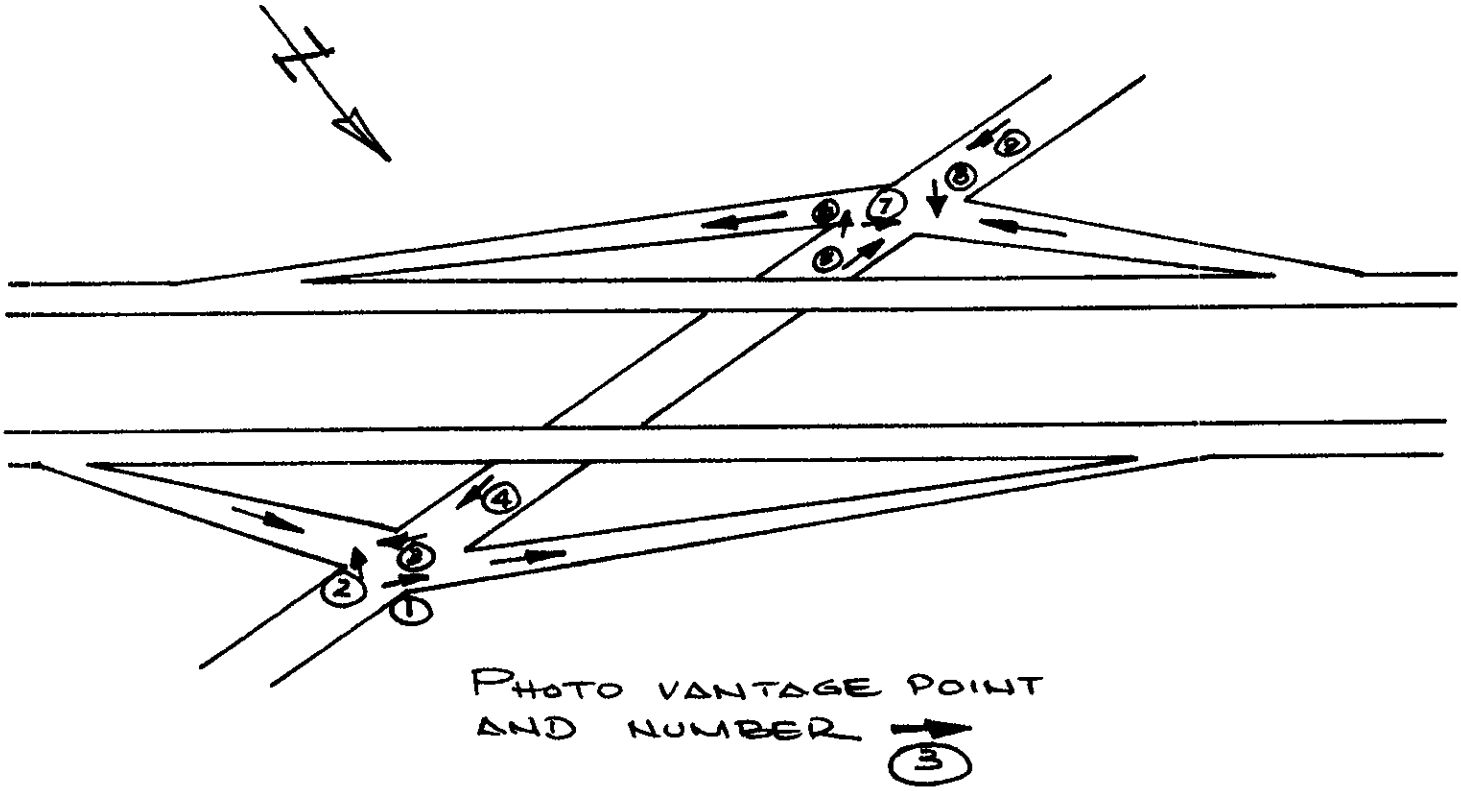
Tom Friday 1363
6/5/71

☐ No ☐ No

3. PAVEMENT MARKINGS

Standard Markings in Place	Good	Poor	Bad
Daytime Visibility	☒	☐	☐
Nighttime Visibility	☐	☒	☐

RECOMENDATION — REPAINT ALL PAVEMENT MARKINGS AND PLACE ADDITIONAL PAVEMENT ARROWS.



SKETCH AND PHOTOGRAPHS

Show details of striping and channelization in immediate vicinity of ramp terminal. Include north arrow, locations and directions where photos are taken, and any streets or driveways near ramp terminal. Also give comments on unusual conditions and indicate any recommendations for improvement on sketch.

13551 10-72 50 DPW REPRO SACTO.

RAMP SURVEY

J. ADAMS 7/22/70
Name Date

R. BAKER

Mno 395 R25.71
Co. Rte. P.M.

Mammoth Lakes
Location

1. RAMP TYPE

- [X] Diamond
- [ ] Loop
- [ ] Buttonhook
- [ ] Other _____ Describe

	Yes	No
Signalized	[ ]	[X]
Lighting	[X]	[ ]

2. SIGNING

- [X] Needs Investigation
- [ ] Standard Signs In Place
- [ ] Obstruction
  - [ ] Tree or Bush
  - [ ] Utility Pole
  - [ ] Other _____ Describe
- [ ] Faded or Damaged

Reflectance (Night)

- [X] Good
- [ ] Poor
- [ ] Bad

Good Signing Directing to On-Ramp

Day	Night
[X] Yes	[X] Yes
[ ] No	[ ] No

RECOMENDATION — PLACE MISSING FREEWAY ENTRANCE (G92) SIGNS

SAMPLE RAMP INSPECTION FORM

C